

# Mineral Industry Surveys

## For information, contact:

Ruth F. Schulte, Chromium Commodity Specialist  
National Minerals Information Center  
Telephone: (703) 648-4963  
Email: rschulte@usgs.gov

Benjamin N. Bryden (Data)

Telephone: (703) 648-7953

Email: bbryden@usgs.gov

**Internet:** <https://www.usgs.gov/centers/national-minerals-information-center/mineral-industry-surveys>

## CHROMIUM IN FEBRUARY 2023

Stainless steel production decreased by 8% in February 2023 compared with production in January 2023 and decreased by 12% compared with production in February 2022 (table 1). Government stockpile inventories for chromium metal were essentially unchanged compared with those in January 2023 but decreased by 4% compared with those in February 2022. Government stockpile inventories for high-carbon ferrochromium decreased by 6% compared with those in January 2023 and low-carbon ferrochromium inventories were essentially unchanged. Inventories for high-carbon ferrochromium and low-carbon ferrochromium decreased by 30% and slightly, respectively, compared with inventories in February 2022 (table 2).

In February 2023, the leading import sources for ferrochromium into the United States were, in descending

order of quantity by gross weight, Zimbabwe, Kazakhstan, and Germany (table 5), whereas the leading import sources for chromium metal were China, the United Kingdom, and France (table 6).

Imports of chromite ore, chromium ferroalloys, stainless steel, and stainless-steel scrap commonly fluctuate from month to month (fig. 1, table 1). In February 2023, imports of chromite ore decreased by 44% compared with imports in January 2023 and by 75% compared with imports in February 2022. Imports of all grades of chromium ferroalloys, including ferrochromium silicon, decreased by 61% compared imports in January 2023 and by 64% compared with imports in February 2022. Stainless steel imports in February 2023 decreased by 14% compared with imports in January 2023 and by 27% compared with those in February 2022. Stainless steel

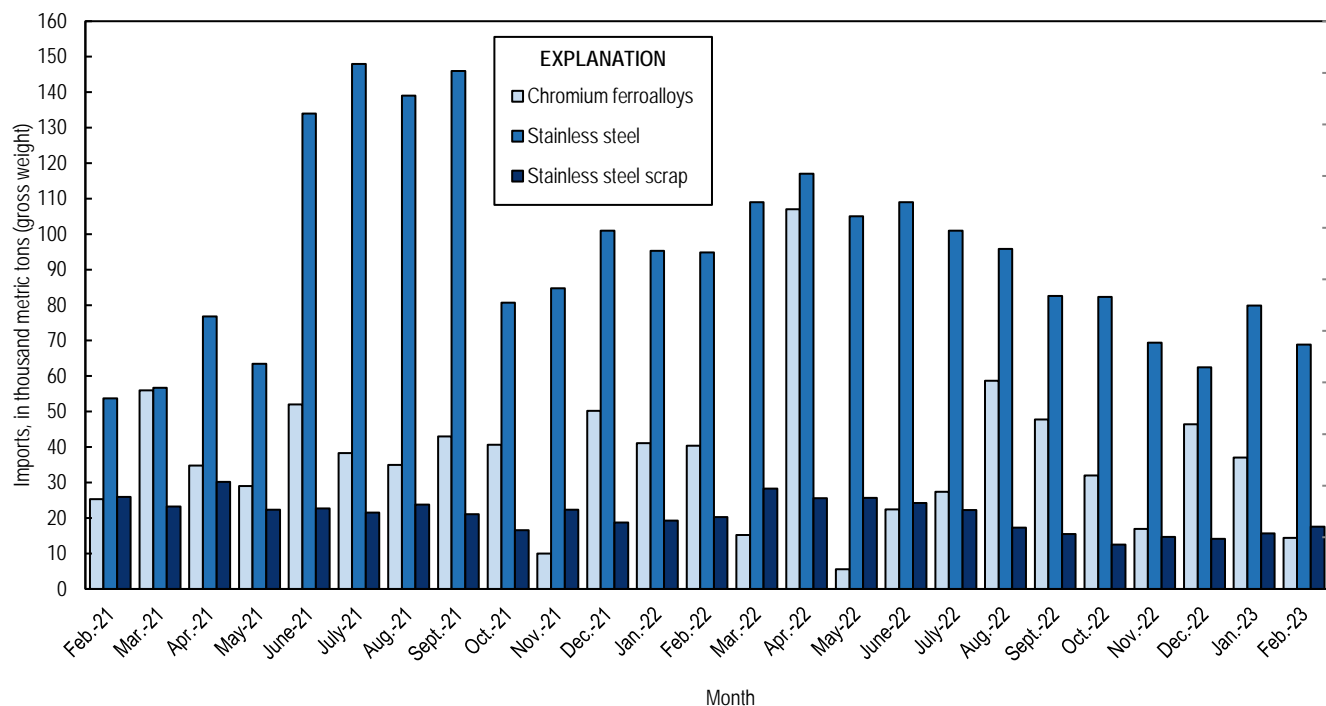


Figure 1. Chromium ferroalloys, stainless steel, and stainless steel scrap imports from February 2021 through February 2023. Source: U.S. Census Bureau.

scrap imports in February 2023 were 12% more than imports in January 2023 and 13% less than those in February 2022 (table 1).

The U.S. chromium metal (99% chromium) average price was \$5.55 per pound in February 2023, 4% less than the average price in January 2023 and 6% less than the average price in February 2022. The U.S. high-carbon ferrochromium (62%–70% chromium) average price was 287.19 cents per pound of contained chromium in February 2023, a slight increase from the average price in January 2023, but 27% more than the average price in February 2022 (fig. 2) (CRU Group, 2023a).

Industry News

Outokumpu Oyj (Finland) restarted its third ferrochromium furnace in Tornio on February 15, a month earlier than planned owing to a decline in the price of electricity. The third furnace was temporarily shutdown in September 2022 owing to the high price of electricity and had been expected to be offline until the end of the first quarter of 2023. Even with the restart, however, Outokumpu reported it would optimize production based on the electricity market and that, accordingly, ferrochromium production capacity would only be 50–60% normal capacity (Outokumpu Oyi, 2023).

Transnet SOC Ltd., a rail, port and pipeline company headquartered in South Africa, suspended its rail services on February 10 following heavy rains in the Mpumalanga and Limpopo provinces. Partial service was restored on the North East Corridor railway on February 13 after engineers deemed

those sections of the railway safe for operations. Exports of chromite and ferrochromium, amongst others, to the Congo (Kinshasa), Eswatini, Mozambique, Zambia, and Zimbabwe were affected by the suspended services (Backeberg, 2023; CRU Group, 2023b).

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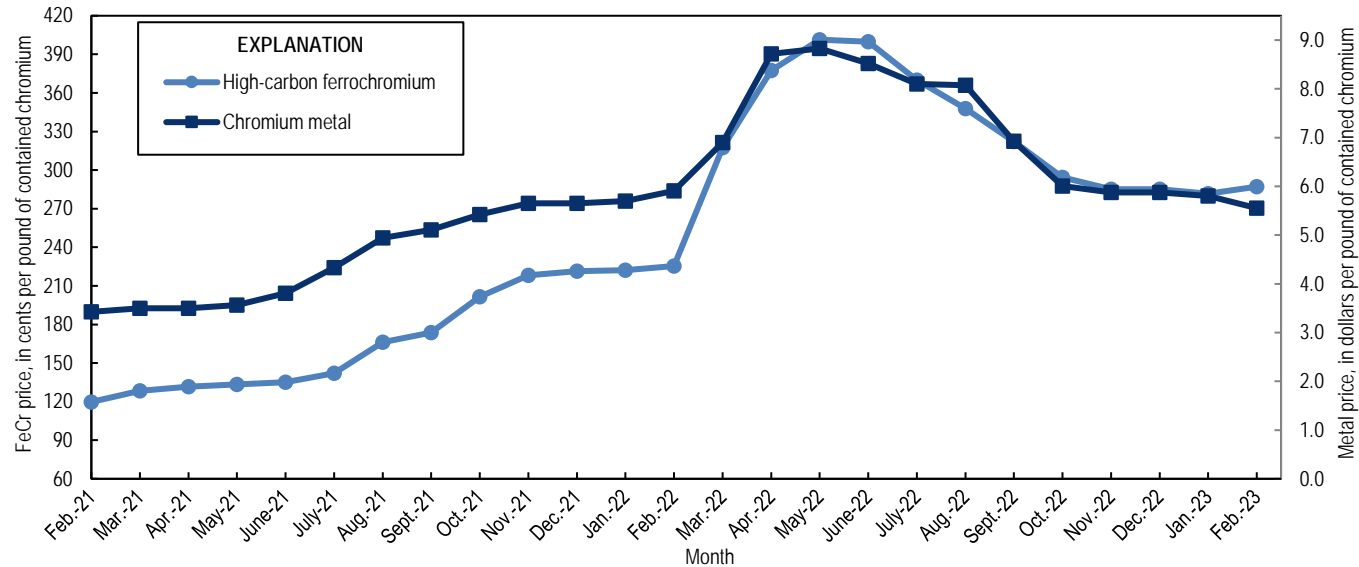


Figure 2. Average monthly prices for U.S. high-carbon ferrochromium (FeCr) and chromium metal from February 2021 through February 2023. Source: CRU Group.

TABLE 1  
U.S. SALIENT CHROMIUM STATISTICS<sup>1</sup>

(Metric tons, gross weight)

	2022		2023		
	December	January– December <sup>2</sup>	January	February	January– February <sup>2</sup>
Production, stainless steel <sup>3</sup>	140,000	2,020,000	163,000	149,000	312,000
Components of U.S. supply:					
Stainless steel scrap receipts <sup>e</sup>	33,900	537,000	39,300	36,100	75,400
Stainless steel scrap consumption <sup>e</sup>	50,100	806,000	58,200	53,400	112,000
Imports for consumption:					
Chromite ore	8,600	121,000	2,120	1,180	3,310
Ferrochromium:					
More than 4% carbon	42,300	399,000	35,300	12,200	47,400
More than 3% but not more than 4% carbon	--	36	--	--	--
More than 0.5% but not more than 3% carbon	81	2,250	25	290	315
Not more than 0.5% carbon	3,600	41,700	1,730	1,950	3,680
Ferrochromium silicon	498	17,100	--	--	--
Total ferroalloy imports	46,400	460,000	37,000	14,400	51,400
Chromium metal <sup>4</sup>	1,170	15,000	1,160	1,100	2,260
Stainless steel	62,500	1,130,000	79,900	68,900	149,000
Stainless steel scrap	14,100	240,000	15,700	17,600	33,300
Exports:					
Chromite ore	180	2,190	124	158	282
Chromium ferroalloys:					
High-carbon ferrochromium	893	3,640	928	402	1,330
Low-carbon ferrochromium	3	637	73	15	89
Ferrochromium silicon	--	40	19	--	19
Total ferroalloy exports	896	4,310	1,020	418	1,440
Chromium metal	83	567	43	20	64
Stainless steel	26,800	350,000	32,000	28,200	60,200
Stainless steel scrap	28,800	387,000	47,800	25,400	73,200
Government stockpile:					
Chromium ferroalloys	43,700	43,700	42,800	41,800	41,800
Chromium metal	3,450	3,450	3,450	3,420	3,420

<sup>e</sup>Estimated. -- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>May include revised data that are not broken out by specific month(s).

<sup>3</sup>Data on stainless steel production reported by American Iron and Steel Institute; monthly, quarterly, and year-to-date production of stainless and heat-resisting raw steel.

<sup>4</sup>Includes waste and scrap and other.

TABLE 2  
U.S. GOVERNMENT STOCKPILE INVENTORY OF  
CHROMIUM MATERIALS<sup>1</sup>

(Metric tons, gross weight)

	Chromium ferroalloys		Chromium metal
	High-carbon ferro-chromium	Low-carbon ferro-chromium	
2022:			
February	22,000	27,000	3,560
March	20,700	26,800	3,520
April	19,600	26,800	3,520
May	19,200	26,800	3,520
June	18,300	26,800	3,480
July	17,400	26,800	3,480
August	17,200	26,800	3,470
September	17,200	26,600	3,470
October	17,200	26,600	3,470
November	17,200	26,600	3,450
December	17,200	26,600	3,450
2023:			
January	16,300	26,600	3,450
February	15,400	26,400	3,420

<sup>1</sup>Data are rounded to no more than three significant digits.

Source: Defense Logistics Agency, DLA Strategic Materials.

TABLE 3  
U.S. EXPORTS OF CHROMITE ORE, CHROMIUM FERROALLOYS, AND METAL<sup>1</sup>

	Chromite ore		Chromium ferroalloys <sup>2</sup>			Chromium metal <sup>3</sup>	
	Gross weight (metric tons)	Value (thousands)	Gross weight (metric tons)	Chromium content (metric tons)	Value (thousands)	Gross weight (metric tons)	Value (thousands)
2022:							
February	170	\$144	252	52	\$259	39	\$1,080
March	262	206	157	44	172	66	1,360
April	255	227	245	129	282	45	867
May	96	77	387	208	390	68	1,410
June	161	110	712	425	783	34	899
July	212	97	316	190	344	25	803
August	194	128	163	47	164	32	937
September	346	194	823	494	729	73	1,620
October	180	157	5	3	11	17	528
November	43	36	36	22	32	22	730
December	180	151	896	432	841	83	1,530
January–December <sup>4</sup>	2,190	1,620	4,310	2,170	4,420	567	12,800
2023:							
January	124	110	1,020	398	1,130	43	1,120
February	158	145	418	141	446	20	675
January–February	282	255	1,440	539	1,580	64	1,800

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes low- and high-carbon ferrochromium and ferrochromium silicon.

<sup>3</sup>Includes chromium metal, waste and scrap, and unwrought powders.

<sup>4</sup>May include revised data that are not broken out by specific month(s).

Source: U.S. Census Bureau.

TABLE 4  
U.S. IMPORTS FOR CONSUMPTION OF CHROMITE ORE, FERROCHROMIUM, AND  
CHROMIUM METAL<sup>1</sup>

(Metric tons)

	2022	2023		
	January– December <sup>2</sup>	January	February	January– February <sup>2</sup>
Chromite ore:				
Not more than 40% chromic oxide:				
Gross weight	5,750	181	220	401
Chromic oxide content	1,750	70	85	155
More than 40% but less than 46% chromic oxide:				
Gross weight	17,100	1,940	947	2,890
Chromic oxide content	7,400	869	408	1,280
46% or more chromic oxide:				
Gross weight	98,200	--	14	14
Chromic oxide content	83,300	--	7	7
Total, all grades:				
Gross weight	121,000	2,120	1,180	3,310
Chromic oxide content	92,500	939	500	1,440
Ferrochromium:				
Low-carbon: <sup>3</sup>				
Not more than 0.5% carbon:				
Gross weight	41,700	1,730	1,950	3,680
Chromium content	29,300	1,200	1,350	2,550
More than 0.5% but not more than 3% carbon:				
Gross weight	2,250	25	290	315
Chromium content	1,520	16	197	213
Total, low-carbon:				
Gross weight	44,000	1,760	2,240	4,000
Chromium content	30,800	1,210	1,550	2,760
Medium-carbon: <sup>4</sup>				
Gross weight	36	--	--	--
Chromium content	25	--	--	--
High-carbon: <sup>5</sup>				
Gross weight	399,000	35,300	12,200	47,400
Chromium content	224,000	17,400	7,120	24,500
Total, all grades:				
Gross weight	443,000	37,000	14,400	51,400
Chromium content	255,000	18,600	8,660	27,200
Chromium metal:				
Unwrought powders	13,500	928	936	1,860
Waste and scrap	519	22	45	67
Other than waste and scrap and unwrought powders	931	211	119	330
Total, all grades	15,000	1,160	1,100	2,260

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>May include revised data that are not broken out by specific month(s).

<sup>3</sup>Ferrochromium containing not more than 3% carbon.

<sup>4</sup>Ferrochromium containing more than 3% carbon but not more than 4% carbon.

<sup>5</sup>Ferrochromium containing more than 4% carbon.

Source: U.S. Census Bureau.

TABLE 5  
U.S. IMPORTS FOR CONSUMPTION OF FERROCHROMIUM IN 2023, BY GRADE AND COUNTRY OR LOCALITY<sup>1</sup>

Grade and country	February			January–February <sup>2</sup>		
	Gross weight (metric tons)	Chromium content (metric tons)	Value <sup>3</sup> (thousands)	Gross weight (metric tons)	Chromium content (metric tons)	Value <sup>3</sup> (thousands)
<b>High-carbon ferrochromium:<sup>4</sup></b>						
Albania	51	32	\$91	278	185	\$696
China	--	--	--	20	14	56
India	213	135	391	983	627	1,920
Kazakhstan	2,760	1,880	10,800	2,810	1,910	10,900
Oman	--	--	--	27	16	65
South Africa	--	--	--	33,900	16,500	35,700
Sweden	--	--	--	244	163	834
Zimbabwe	9,130	5,060	11,900	9,130	5,060	11,900
Total	12,200	7,120	23,200	47,400	24,500	62,200
<b>Low-carbon ferrochromium:<sup>5</sup></b>						
<b>More than 0.5% but not more than 3% carbon:</b>						
Brazil	100	63	597	100	63	597
China	--	--	--	25	16	105
Kazakhstan	190	134	1,400	190	134	1,400
Total	290	197	2,000	315	213	2,110
<b>Not more than 0.5% carbon:</b>						
Brazil	--	--	--	300	187	1,070
China	--	--	--	100	71	401
Germany	798	537	4,460	1,630	1,110	9,120
India	275	207	1,020	425	326	1,560
Japan	209	127	1,730	453	299	3,700
Kazakhstan	668	479	5,000	670	480	5,010
Turkey	--	--	--	100	69	609
Total	1,950	1,350	12,200	3,680	2,550	21,500
<b>All grades:</b>						
Albania	51	32	91	278	185	696
Brazil	100	63	597	400	250	1,670
China	--	--	--	145	101	562
Germany	798	537	4,460	1,630	1,110	9,120
India	488	342	1,410	1,410	952	3,490
Japan	209	127	1,730	453	299	3,700
Kazakhstan	3,620	2,500	17,200	3,670	2,530	17,400
Oman	--	--	--	27	16	65
South Africa	--	--	--	33,900	16,500	35,700
Sweden	--	--	--	244	163	834
Turkey	--	--	--	100	69	609
Zimbabwe	9,130	5,060	11,900	9,130	5,060	11,900
Total	14,400	8,660	37,400	51,400	27,200	85,800

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>May include revised data that are not broken out by specific month(s).

<sup>3</sup>Customs import value generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance, and other charges incurred in bringing the merchandise into the United States.

<sup>4</sup>Ferrochromium containing more than 4% carbon.

<sup>5</sup>Ferrochromium containing not more than 3% carbon.

Source: U.S. Census Bureau.

TABLE 6  
U.S. IMPORTS FOR CONSUMPTION OF CHROMIUM METAL IN 2023,  
BY GRADE AND BY COUNTRY OR LOCALITY<sup>1</sup>

Grade and country or locality	February		January–February <sup>2</sup>	
	Gross weight (metric tons)	Value <sup>3</sup> (thousands)	Gross weight (metric tons)	Value <sup>3</sup> (thousands)
Unwrought powders:				
China	542	\$4,590	989	\$9,530
France	38	439	57	796
Germany	38	265	61	428
India	20	247	20	247
Russia	29	345	149	1,510
United Kingdom	269	4,650	588	10,100
Total	936	10,500	1,860	22,600
Waste and scrap:				
Canada	4	23	17	94
Japan	--	--	9	78
Korea, Republic of	(4)	5	(4)	5
United Kingdom	41	328	41	328
Total	45	355	67	504
Other than waste and scrap and unwrought powders:				
Canada	--	--	(4)	221
China	1	56	3	182
France	57	950	211	4,060
Germany	1	134	2	223
Japan	--	--	2	38
Malaysia	(4)	4	(4)	4
Russia	60	492	80	671
South Africa	--	--	21	199
Taiwan	--	--	(4)	12
United Kingdom	--	--	10	199
Total	119	1,640	330	5,810
All grades:				
Canada	4	23	17	315
China	543	4,640	992	9,710
France	95	1,390	269	4,860
Germany	39	399	64	651
India	20	247	20	247
Japan	--	--	11	115
Korea, Republic of	(4)	5	(4)	5
Malaysia	(4)	4	(4)	4
Russia	89	837	229	2,180
South Africa	--	--	21	199
Taiwan	--	--	(4)	12
United Kingdom	310	4,980	639	10,600
Total	1,100	12,500	2,260	28,900

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>May include revised data that are not broken out by specific month(s).

<sup>3</sup>Customs import value generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance, and other charges incurred in bringing the merchandise into the United States.

<sup>4</sup>Less than ½ unit.

Source: U.S. Census Bureau.



TABLE 7  
U.S. STAINLESS STEEL TRADE, BY PRODUCT, IN 2023<sup>1</sup>

Stainless steel product	February		January–February <sup>2</sup>	
	Gross weight (metric tons)	Value <sup>3</sup> (thousands)	Gross weight (metric tons)	Value <sup>3</sup> (thousands)
<b>Exports:</b>				
Ingot	1,480	\$9,510	2,540	\$16,400
Flat-rolled (width > 600 mm)	14,800	65,200	32,500	141,000
Flat-rolled (width < 600 mm)	5,510	49,100	10,800	99,800
Bars and rods in irregular coils	123	776	673	3,720
Other bars and rods	2,650	36,000	5,500	76,900
Wire	597	12,300	1,240	25,300
Tubes, pipes, hollow profiles	3,050	36,800	6,920	76,400
Total	28,200	210,000	60,200	439,000
Stainless steel scrap	25,400	38,100	73,200	78,100
Grand total	53,600	248,000	133,000	517,000
<b>Imports:</b>				
Ingot	14,800	43,900	27,000	80,000
Flat-rolled (width > 600 mm)	22,000	79,400	46,100	177,000
Flat-rolled (width < 600 mm)	4,430	22,300	10,200	51,700
Bars and rods in irregular coils	3,030	15,900	6,600	33,100
Other bars and rods	11,000	69,500	27,000	162,000
Wire	2,690	17,000	6,930	45,400
Tubes, pipes, hollow profiles	10,900	89,800	25,000	203,000
Total	68,900	338,000	149,000	752,000
Stainless steel scrap	17,600	21,400	33,300	39,000
Grand total	86,400	359,000	182,000	791,000

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>May include revised data that are not broken out by specific month(s).

<sup>3</sup>Export value is free alongside ship. Import value is Customs import value, which generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance, and other charges incurred in bringing the merchandise into the United States.

Source: U.S. Census Bureau.